performed on an experimental bubbler in the laboratory, which was of the ordinary continuous flow type, the bubble being fed through four perforations in the top of a cylinder which screws into the centre of a hollow metal bulb. When B. prodigiosus was introduced by a pipette or the moistened lips into such a fountain, organisms were found to remain in the column of water from two to one hundred and thirty-five minutes, depending partly on the height of the bubble. This was due to the fact that, of the organisms introduced, most of them are flushed off at once, but some remained "dancing" in the water of the column for varying periods of time. The authors recommend the use of a fountain with the tube at an angle of 50 degrees from the vertical to avoid the difficulties of the fountain with a vertical column. Plates made from this type of fountain never showed the presence of B. prodigiosus even when samples were taken immediately after cultures of it had been introduced.

Experimental Epidemiology in Tuberculosis.—A. DISTASO (*Jour., Infect. Dis.*, 1916, xix, No. 4) studied the epidemiology of tuberculosis and formed the following postulate: The longer a comcommunity of people has been in contact with tuberculosis virus the less mortality is to be found among the people constituting that community, though almost 90 per cent. of civilized people in postmortem examination present healed tuberculous lesions. The author says that in investigating the cause of this diminished mortality two questions arise: (1) whether the virus has become attenuated through passages, or (2) whether the persons concerned have acquired a resistance to the virus. In answering these questions the author considers these problems—how the tuberculosis process is spread, what are the probable channels of infection, and what are the conditions under which resistance or immunity are established. In a series of experiments, uninfected guinea-pigs were put in the cages with infected ones at regular intervals. After seventeen days of exposure 75 per cent. died and showed tuberculous lesions on postmortem examination. By a second experiment the author showed that the amount of the initial dose of tubercle bacilli does not materially affect infection by contact, that infection by contact in 100 per cent. of the cases is lethal, and that the conditions of infection are still active after one month and three days. Another series of experiments was undertaken to determine the period of infectivity of the virus. As a result of these, the author concludes that a cycle of infection through contact exists. There is a curve which is *nil* at the beginning, which rises to its highest point between the ninth and thirty-third days and which then goes down again. It would seem that "at the beginning of the process few tubercle bacilli are excreted, with which the new contact can easily deal, and acquire a kind of resistance which preserves the animal when the excretion is at its height; but as soon as the infection goes on and the microbes swarm in the body, massive doses are excreted." By this time the new contact is powerless to cope at once with this large quantity, and therefore the pathogenic process establishes itself. The author's experiment to find out whether guinea-pigs living for a long time in contact with tuberculous guinea-pigs acquire a state of immunity proved nothing, as the subcutaneous inoculation was too severe a test for demonstrating immunity. As regards the channel of infection the author states that in contact cases of tuberculosis in guinea-pigs three hypotheses, namely, that infection occurs (1) through the mouth, (2) through the nose, or (3) through both. He believes that the channel of infection in guinea-pigs is through the nose, as his experiments show that very small doses given through the nose almost certainly produce pulmonary tuberculosis, whereas observation of habits of the guinea-pig show that infection through the mouth probably does not occur.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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The Cytology of the Exudate in the Early Stages of Experimental Pneumonia.—Evans (*Jour. Infect. Dis.*, 1916, xix, 440) publishes a brief report of an experimental study of the early cellular exudate in acute pneumonic infections. In classifying the cells, which is done according to their origin rather than by morphology, the writer makes use of the indophenol blue reaction, employed to demonstrate the presence of an oxydase ferment in the cell body. Rabbits were used in the experimental work. Pneumonia was induced by intratracheal injections of broth cultures of pneumococci of Groups I and IV and two types of streptococci. The pneumococcus infection gave the gross appearance of lobar pneumonia better than did the streptococci. The lesions were examined after intervals of from eight to thirty-six hours following injection. Tissue from three autopsies on human cases of pneumococcal pneumonia, in which death had occurred at the third, fourth and fifth days respectively, was also available. The fact that the cytology of the exudate in the human cases was quite like that of the experimentally induced exudates is notable and indicates with what success such experimental work may be carried on. The cytology was also practically the same in all the experimental preparations. The cellular elements of the exudate were largely mononuclear although alveoli in which polymorphonuclear cells largely predominated were sometimes found. A few small lymphocytes were always present. A few very large mononuclear cells which were readily classified as epithelial cells also appeared frequently. In addition to these, two other types of large mononuclear cells were present in about equal